W. H. & G. W. LEIMAN.
ROTARY PUMP.
APPLICATION FILED AUG. 21, 1917.

1,290,251.

Patented Jan. 7, 1919.

Fig. 3.

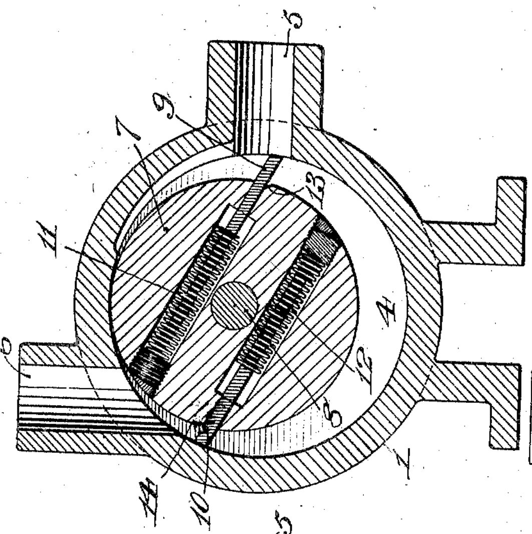


Fig. 4.

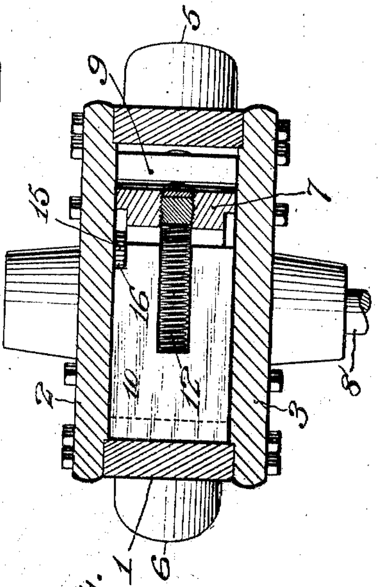


Fig. 2

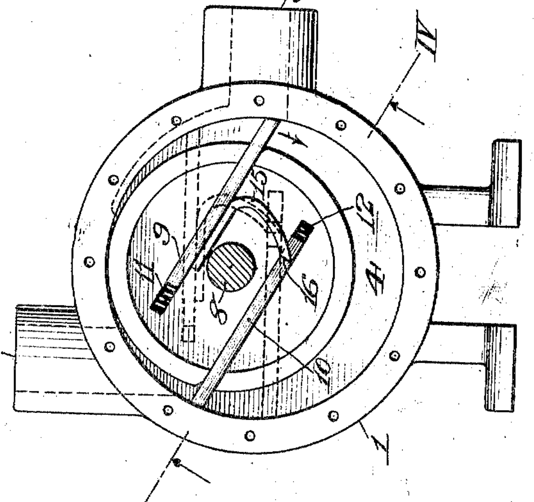
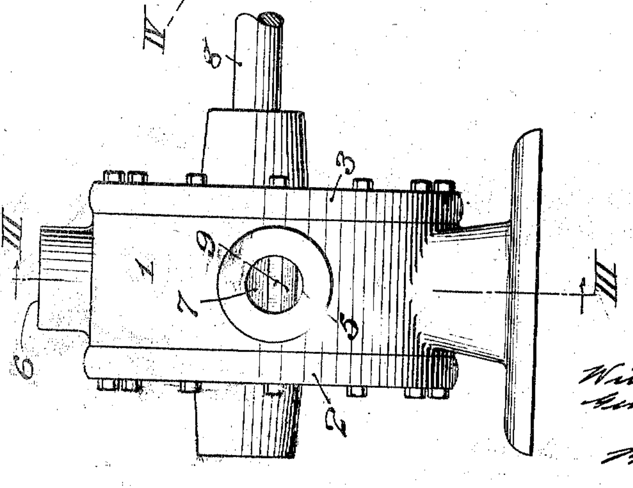


Fig. 1.



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UNITED STATES PATENT OFFICE.

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ROTARY PUMP.

1,290,251. Specification of Letters Patent. Patented Jan. 7, 1919.

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To all whom it may concern:

Be it known that we, WILLIAM H. LEIMAN and GEORGE W. LEIMAN, citizens of the United States, and residents of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Rotary Pumps, of which the following is a specification.

In rotary pumps where an eccentrically mounted rotary disk is located within the cylindrical chamber and in which spring-pressed pistons slide radially in said rotary disk, the pistons frequently work hard and cramp because of their necessarily short bearing in the disk, and also the pistons sometimes stick and thereby render them ineffective. Also in rotary pumps of this character foreign matter sometimes enters the cylindrical chamber and causes the stoppage of the disk.

The object of our invention is to obviate all of these faults, the first fault being obviated by mounting the pistons tangentially to give them an extended bearing in the disk; the second fault being obviated by providing means whereby any piston on its inward movement will positively start another piston on its outward movement should it happen to stick; and the third fault being obviated by providing the disk with a transverse recess in its periphery along the face of each of the pistons for receiving the foreign matter which might collect in the cylindrical chamber and tend to clog the pump.

A practical embodiment of our invention is represented in the accompanying drawings in which,

Figure 1 represents the pump in side elevation,

Fig. 2 represents the same in end elevation,

Fig. 3 represents the pump in section taken in the plane of the line III—III of Fig. 1, and

Fig. 4 represents the pump in section taken along the plane of the line IV—IV of Fig. 2.

The pump comprises the casing 1 and end plates 2, 3, forming a cylindrical chamber 4 having suitable inlet and outlet ports 5, 6. A cylindrically mounted rotary disk 7 is located within the cylindrical chamber 4, its shaft being denoted by 8.

Tangentially arranged spring-pressed pistons, in the present instance two overlapping pistons 9, 10, are slidably mounted in the rotary disk 7, the springs 11, 12, serving to force the pistons outwardly against the inner perimeter of the cylindrical chamber 4. Transverse recesses 13, 14, are located in the periphery of the rotary disk 7, along the faces of the pistons 9, 10, in position to receive any foreign matter which may collect in the cylindrical chamber and thus obviate any liability of the pump becoming clogged by the lodgment of such foreign matter between the inner perimeter of the cylindrical chamber 4 and the periphery of the rotary disk 7.

Means are employed whereby either piston on its inward movement will positively start the other piston on its outward movement should it happen to stick, which means in the present instance, is shown as a finger 15, secured to the piston 9 and projecting into position to engage a shoulder 16 on the piston 10. This finger 15 forms a lost motion connection between the two pistons, the said finger being so arranged that if one of the pistons fails to start on its outward movement by becoming stuck or through the weakness of its spring, the inward movement of the other piston will, through the said finger, positively start the first named piston on its outward movement, thus automatically correcting this fault in the pump.

By arranging the pistons tangentially instead of radially, they work more easily and may be made longer than heretofore.

It is obvious that various changes may be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of our invention, and hence we do not wish to limit ourselves strictly to the structure herein shown and described, but

What we claim is:

1. In a rotary pump, a cylindrical chamber having suitable inlet and outlet ports, an eccentrically mounted rotary disk, spring-pressed pistons sliding therein, said pistons being parallel to each other with respect to a diametrical plane, and a mechanical means for positively operating said pistons whereby one piston on its inward movement will positively start another piston on its outward movement should it happen to stick.

2. In a rotary pump, a cylindrical chamber having suitable inlet and outlet ports,

an eccentrically mounted rotary disk, spring pressed pistons sliding therein, said pistons being parallel to each other with respect to a diametrical plane, one of said pistons being provided with a finger arranged to engage another piston, whereby one piston on its inward movement will positively start another piston on its outward movement should it happen to stick.

3. In a rotary pump, a cylindrical chamber having suitable inlet and outlet ports, an eccentrically mounted rotary disk, spring pressed pistons sliding therein, said pistons being parallel to each other with respect to a diametrical plane, one of said pistons being provided with a shoulder and another piston a finger arranged to engage said shoulder, whereby one piston on its inward movement will positively start another piston on its outward movement should it happen to stick.

In testimony, that we claim the foregoing as our invention, we have signed our names this 25 day of July, 1917.

WILLIAM H. LEIMAN.
GEORGE W. LEIMAN.